# THE BIOLOGY OF *PLATYCIS SCULPTILIS* (SAY) (COLEOPTERA: LYCIDAE)[1]

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ABSTRACT

The larvae of *Platycis sculptilis* (Say), found in decaying wood of a white pine (*Pinus strobus* L.) near Ithaca, New York, are described and illustrated. Larvae were found to move through soft wood by hydrostatic action and fed on decaying juices of the wood. Three pupae and four adults were obtained by rearing.

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Peterson (1951) illustrated a net-winged beetle larva, tentatively identified as *Calopteron* sp., that was found under the bark of a dead tree. His illustration represents a species closely related to, and possibly conspecific with, *Platycis sculptilis* (Say), described in the present paper. The specimen figured by Peterson has smaller labial palpi relative to the maxillary palpi and have the setae in a differing arrangement when compared to the larvae of *P. sculptilis*. It may be the specimen illustrated by Peterson was not an ultimate instar larva. His *Calopteron* sp. probably belongs in the tribe Platerodini and not the Calopterini (tribes defined by Green, 1951 & 1952) as it is an orthosomatic larva. *Calopteron reticulatum* (Fab.), illustrated by Böving & Craighead (1931) and *C. terminale* (Say) (to be described in a later paper), have onisciform larvae, that is the middle segments are wider and deeper than the others.

## LIFE HISTORY AND HABITS

*Platycis sculptilis* larvae were collected from a decaying white pine log (*Pinus strobus* L.) on Cornell University's South Hill Marsh Preserve just south of Ithaca, Tompkins County, New York, on May 11, 1975. The log was in various stages of decay, being very solid towards the center. The periphery could be pulled apart by hand. Most of the larvae were found in this loose outer region with a few penetrating into wood that could be pried apart with a screwdriver. The larvae did not make tunnels in the wood, but pushed through it using the thoracic legs combined with the hydrostatic pressure resulting from body contractions. This restricted them to the softer, decaying, peripheral wood.

Withycombe (1926) found that the larvae of *Calopteron fasciatum* Lap. were lignivorous, using suctorial mouth parts to feed on the juice of decaying wood. The larva of *P. sculptilis* has a similar feeding mechanism and draw in decaying wood juices by means of a grooved mandible (Fig. 2). Böving & Craighead (1931) illustrate a similar two-part mandible for *Eros*

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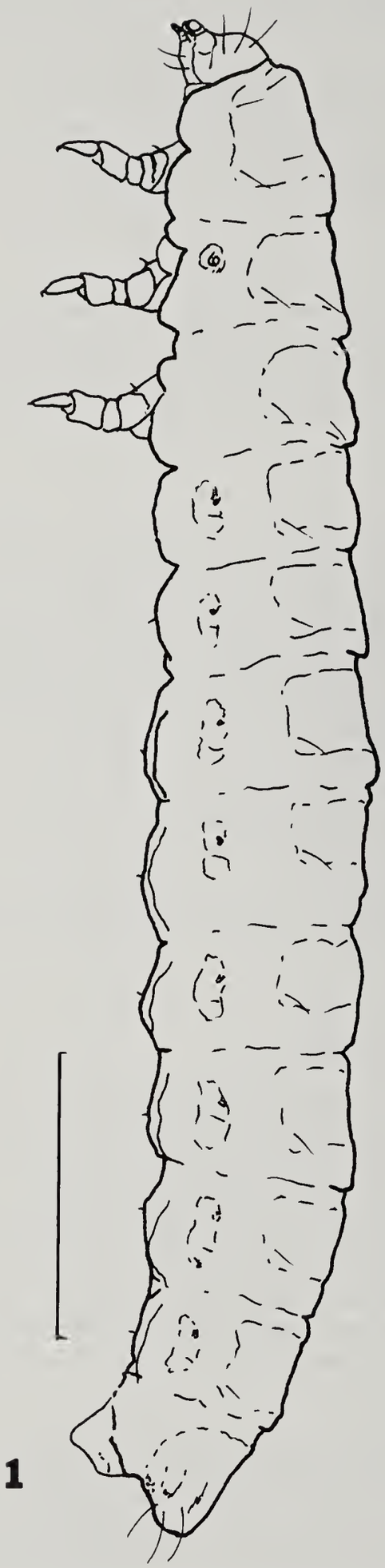
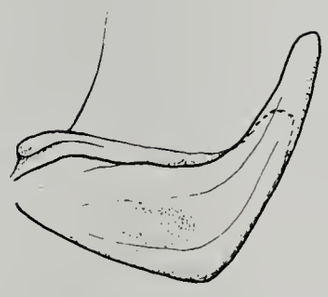




Figs. 1-3, Mature larva of *Platycis sculptilis:* 1, Entire larva, lateral view; 2, Left mandible, ventral view; 3, Third abdominal spiracle. Scale refers to Fig. 1 (line = 2 mm).

*humeralis* Fab. The larval mandibles of *P. sculptilis* are fused at the base and incapable of apposition (Fig. 4) seemingly eliminating the possibility of any predatory habits, although Crowson (1955) speculates that lycid larvae may use a toxic secretion to immobilize prey it has cornered in the end of a burrow. Crowson also states that lycid larvae "probably prey on other larvae." According to Peterson (1951) lycid larvae are not predaceous so far as known. According to Britton (1967): "Both adults and larvae are predatory, the larvae living beneath bark or in the soil."

Larvae of *P. sculptilis* were observed to feed by exerting hydrostatic pressure on the decaying wood, causing the wood to "bleed", then probing the squeezed out juices with the mandibles. After exhausting this small supply, the larva pushes forward, aided by hydrostatic action, and repeats the process. The space vacated collapses, leaving no indication of a tunnel.

In May of 1974, a solitary larva of *P. sculptilis* was collected under the loose bark of a dead tree at Glenwood Point, Tompkins County, New York. From this capture and Peterson's record, it is likely the larvae occupy diverse dead wood environments. Considering the early spring date of finding late instar *P. sculptilis* larvae, and as the adult is a summer species, it is probably that the species overwinters as late or final instar larvae.

Green (1949) considered adult Lycinae to be diurnal beetles. Adults of *Calopteron* are regularly taken in the daytime and *C. terminale, C. reticulatum* and *P. sculptilis* have all been taken at night at ultraviolet lights.

## Description of the Mature Larva of *Platycis sculptilis*

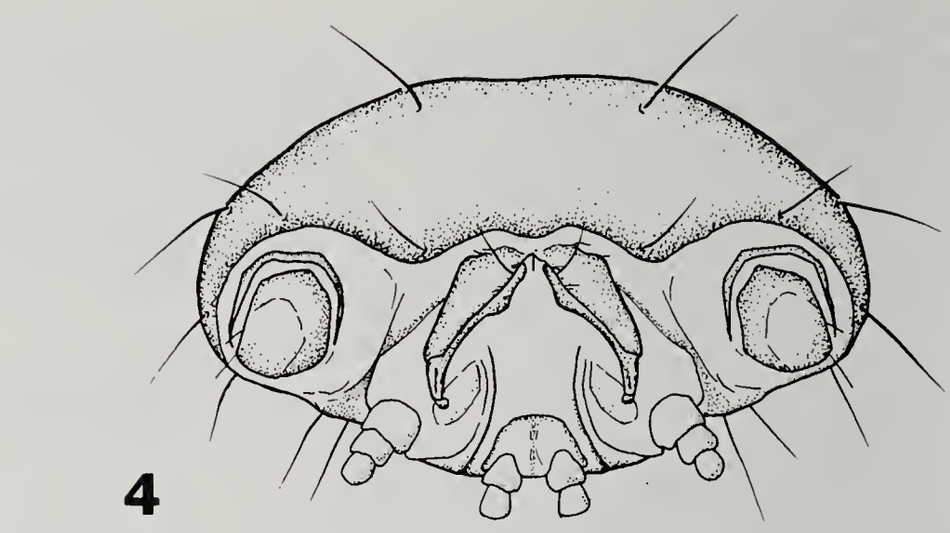
*General:* 8.2-14.5 mm long ($n=26$, $\bar{x}=11.3$), 1.3-2.1 mm wide; orthosomatic, feebly curved; body bright yellow with few setae; thoracic and abdominal tergites light brown; head wholly light brown.

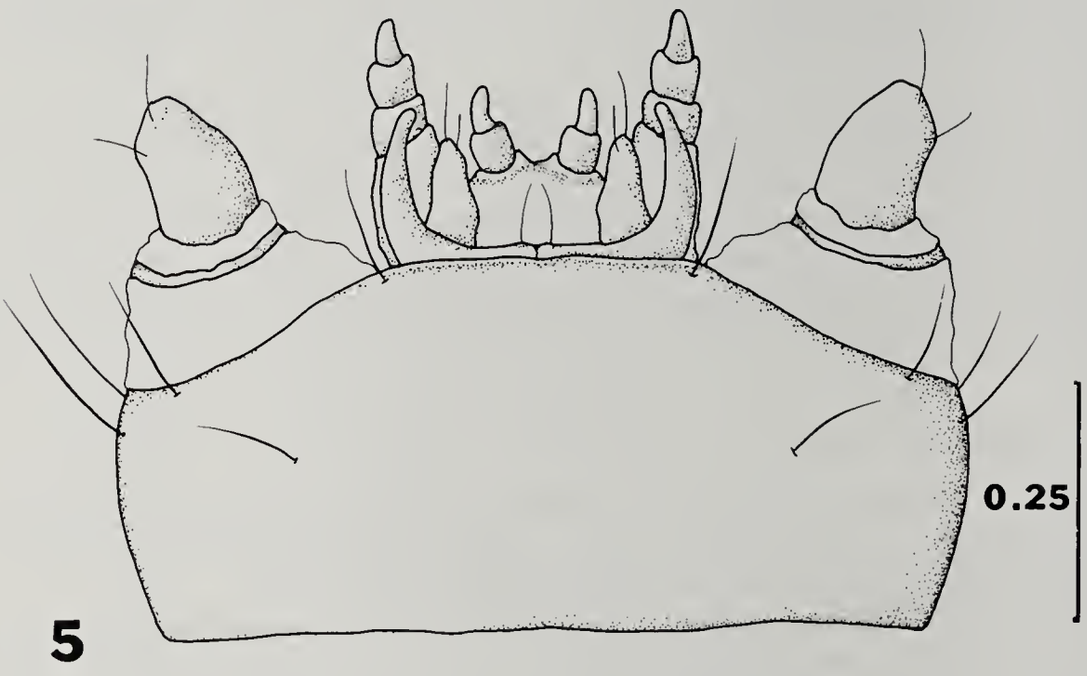
*Head:* Small, exserted, prognathous, moderately depressed, hind margin nearly straight, anterior margin slightly produced, frontal and epicranial sutures absent, frons, clypeus and labrum fused (Fig. 5); setae as drawn (Fig. 4-6); ocelli absent; antennae retractible, short, thick, 2-segmented, basal antennal segment a narrow ring, terminal segments large, blunt, dome-shaped, bearing 2 apical setae, intersegmental membranous region extensive; mandibles falciform, fused at base, curved dorsally at the tips, in 2 parts, outer part unisetose, ensheathing the inner (Figs. 2 & 4); maxillary palpigers each bear conical palpus of 3 segments, tapering to end, and a 1-segmented galea with 3 setae; labium with lightly sclerotized prementum bearing 2-segmented palpi; mentum and submentum fused, enlarged mentum with anterior arms extending alongside prementum; strong hypostomal sutures delimit partially sclerotized gular region (Fig. 6); hypopharynx unadorned.

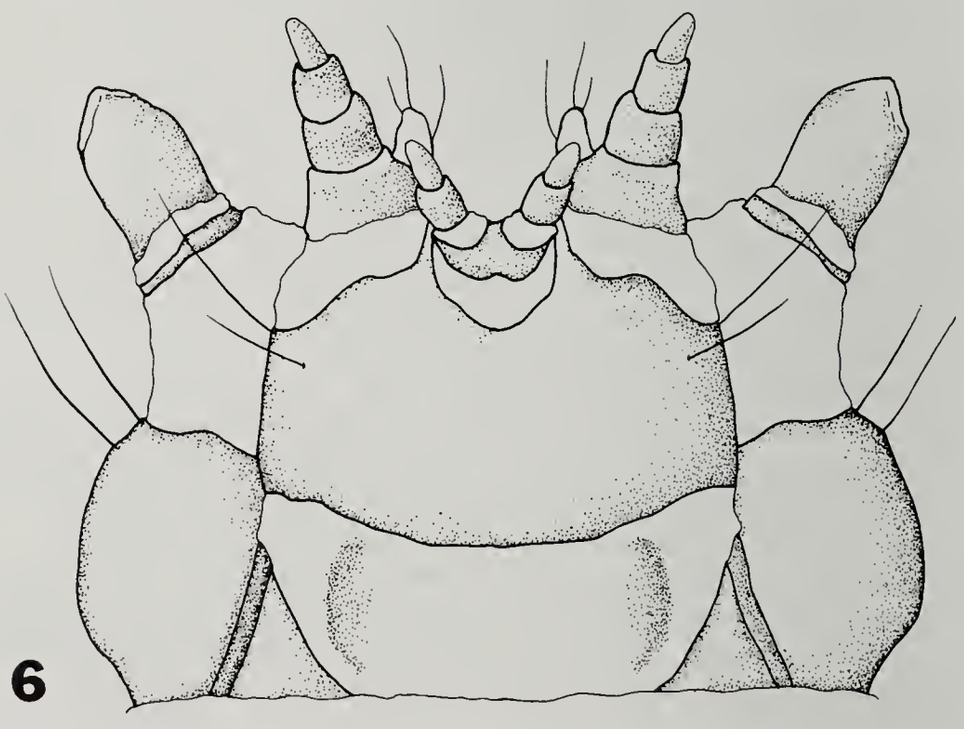
*Thorax:* Segments subequal in length, each with small quadrate tergite; prothorax with 8 setae, meso and metathorax with 4 setae. Prothorax with small triangular sternite, meso and metathorax each with tiny ovoid sternite which bear 2 setae; oval mesothoracic spiracle subequal in size to abdominal spiracles, originating cephalad of mesothoracic leg; tibia subequal to femur, bearing single claw.

*Abdomen:* Segments 1-8 with small quadrate tergites bearing 2 setae; sternite with 4 setae in transverse line; spiracles annular-biforous, minute (.06 mm) (Fig. 3), located anterior to, and level with, single seta inserted on slightly raised lateral ovoid pleurite; lateroventral aspects bulge slightly, segment 9 without projections, 8 setae on caudal tip.

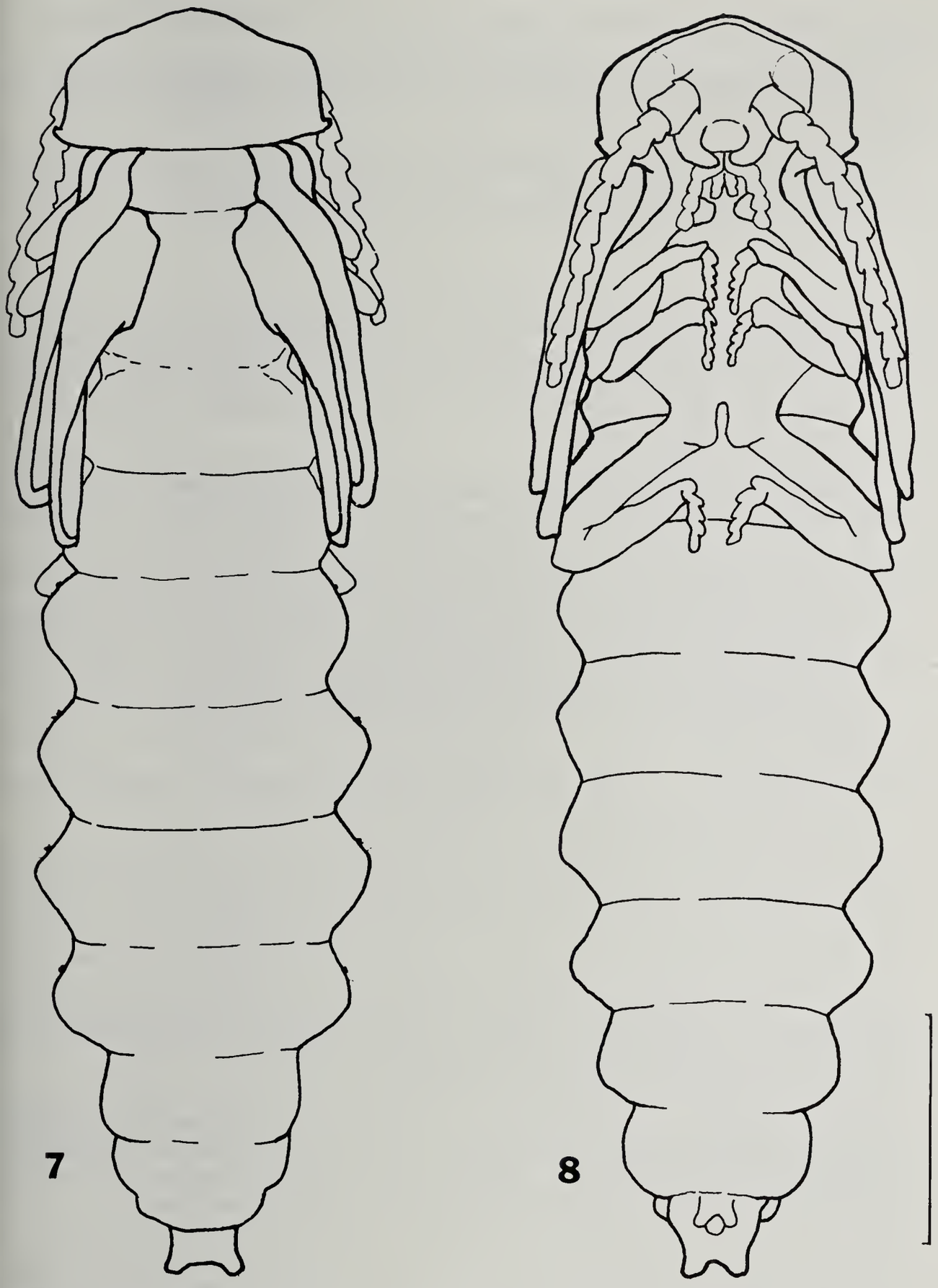
*Specimens examined:* 26 mature larvae, South Hill Marsh Preserve, near Ithaca, Tompkins County, New York, 11 May, 1975, from *Pinus strobus* log, collected and determined (by association with reared adults) by T. L. McCabe.




Figs. 4-6, Mature larva of *Platycis sculptilis:* 4, Head, frontal view; 5, Head, dorsal view; 6, Head, ventral view (line = 0.25 mm).




Figs. 7-8, Pupa of *Platycis sculptilis:* 7, Entire pupa, dorsal view; 8, Entire pupa, ventral view (line = 2 mm).

## Description of the Pupa of *Platycis sculptilis*

*General:* 11.0-12.5 mm long, 2.5-3.0 mm wide; exarate; bright yellow, glabrous.

*Head:* Size moderate, unadorned, hidden by pronotum in dorsal view.

*Thorax:* Prothorax subquadrate, produced slightly anteriorly, posterolateral

corners projecting and bearing minute setae (Fig. 7); mesothorax 1/2 length of metathorax.

*Abdomen:* Spiracles annular-biforous, borne on lateral bulges, one minute seta posterior to each spiracle; segment 9 with 2 blunt, fleshy, peliferous caudal projections.

*Specimens examined:* 3 pupae, all from South Hill Marsh, Tompkins County New York, 11 May 1975, collected and determined by T. L. McCabe.

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## BOOK NOTICE

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